

Borehole

50-08-05**Log Event A****Borehole Information**

Farm : <u>T</u>	Tank : <u>T-108</u>	Site Number : <u>299-W10-143</u>
N-Coord : <u>43,400</u>	W-Coord : <u>75,716</u>	TOC Elevation : <u>672.71</u>
Water Level, ft : <u>86.7</u>	Date Drilled : <u>3/31/1974</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness, in. : <u>0.237</u>	ID, in. : <u>4</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>94</u>	
Type : <u>Steel-welded</u>	Thickness, in. : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>94</u>	

Cement Bottom, ft. : 94 Cement Top, ft. : 0

Borehole Notes:

Borehole 50-08-05 was drilled in March 1974 using a cable-tool drilling rig. The borehole was completed to a depth of 94 ft with 6-in. casing. In August 1980, the original 6-in. casing was perforated from the ground surface to 20 ft and 91 to 93 ft. A 4-in. casing was installed inside the original 6-in. casing and the annular space between the two casings was filled with 109 gal of grout.

An exact casing correction factor was not available to match the field conditions for this borehole; therefore, a 0.5-in.-thick casing correction factor was used to analyze the data. A correction for the annular grout was not applied. Use of this casing correction factor will cause the radionuclide concentrations to be underestimated.

The tops of both casings, which are the zero reference for the SGLS, are approximately even with the ground surface. There is no grout visible between the two casings at the ground surface.

Equipment Information

Logging System : <u>1B</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1997</u>	Calibration Reference : <u>GJO-HAN-20</u>	Logging Procedure : <u>MAC-VZCP 1.7.10-1</u>

Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>04/28/1998</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>200</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>43.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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50-08-05**Log Event A**

Log Run Number :	<u>2</u>	Log Run Date :	<u>04/29/1998</u>	Logging Engineer:	<u>Alan Pearson</u>
Start Depth, ft.:	<u>90.0</u>	Counting Time, sec.:	<u>200</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>42.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

Logging Operation Notes:

This borehole was logged in two log runs. Logging began on April 28, 1998 and was completed on April 29, 1998. The total logging depth achieved by the SGLS was 90 ft. Spectra were collected at intervals of 0.5 ft using a 200-s counting time.

At the time of logging, there was standing water in this borehole below 86.7 ft.

Analysis Information

Analyst : D.L. ParkerData Processing Reference : MAC-VZCP 1.7.9Analysis Date : 07/30/1998**Analysis Notes :**

The pre-survey and post-survey field verification for each logging run met the acceptance criteria established for peak shape and system efficiency. The energy calibration and peak-shape calibration from the field verification spectrum that most closely matched the field data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra.

A casing correction factor for a 0.50-in.-thick casing was applied during processing because this correction most closely matched the double casing. A correction for the grout was not applied because that correction is not available. Shape factor analysis was not applied to determine the distribution of man-made radionuclides around this borehole because the effects of the dual casing and annular grout on the shape factor calculations have not been quantified.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Results/Interpretations:

The radionuclide concentrations identified in this section are only apparent concentrations and should be considered underestimated.



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Log Data Report

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The only man-made radionuclide detected in this borehole was Cs-137. The Cs-137 contamination was detected continuously in the upper 2.5 ft, continuously from 11 to 13.5 ft, and almost continuously from 15.5 to 18 ft. In addition, a single detection of Cs-137 occurred at a depth of 79 ft.

K-40 concentrations increase sharply at about 38.5 ft from a background concentration of about 11 to about 14 pCi/g. K-40 concentrations decrease at about 53 ft to a background concentration of about 11 pCi/g and then steadily increase to 14 pCi/g at the bottom of the logged interval. K-40 and Th-232 concentrations increase at 71 ft; Th-232 and U-238 concentrations increase below 83 ft.